

## **REMARKS**

1. In the above-captioned Office Action, the Examiner rejected claims 1, 3-7, 9, 10, 12, 15, 22, 23, 25, 26, 28, 31, 34 and 35 under 35 U.S.C. §103(a) as being unpatentable over Chua (U.S. Patent Publication 2004/0183833) in view of Davidson (U.S. Patent No. 5,627,567) and Vargas (U.S. Patent No. 5,748,512). Claims 8, 11, 24 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chua, Davidson, and Vargas in further view of Moon et al. (U.S. Patent No. 6,259,436). Claims 36 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chua, Davidson, and Vargas in further view of Robinson et al. (U.S. Patent No. 6,801,190). These rejections are traversed and reconsideration is hereby respectfully requested.

2. The Examiner rejected claims 1, 3-7, 9, 10, 12, 15, 22, 23, 25, 26, 28, 31, 34 and 35 under 35 U.S.C. §103(a) as being unpatentable over Chua in view of Davidson and Vargas.

## THE CHUA REFERENCE

Chua discloses:

[0017] In brief, in a mobile telephone with a virtual keyboard and a touch screen, individual virtual keys have their own representative positions. During a selection operation to select a key, where the touch screen is touched becomes the selected position. The distance between the selected position and adjacent representative positions is used to decide a first set of candidate keys. These candidate keys are then used to provide a set of potential words that would result from the input of any one of those keys. [Paragraph 0017]

"In this embodiment, touching a key 22 on the virtual keyboard 20 is not simply taken as a selection of that key. There may have been a mistake owing to parallax error and/or inaccurate aim. Instead, the driver circuit 36 uses the **selected position relative to the representative positions of the keys to determine possible candidates (candidate keys) for the desired symbol**. It also uses the **offset between the selected position and the representative positions of the candidate keys and predictive word input technology to derive a list of candidate words**. The word choices made available are taken from those that exist in the database dictionary, based upon the letters that have already been input in the current word string and how frequently the potential words are used. This is displayed and the user selects one of them if and as desired. [Paragraph 0023, emphasis added]

FIG. 3 is a close up of an area of the virtual keyboard 20. This area is roughly centered on the letter keys for "t", "y", "g" and "h", each with its own representative position 50t, 50y, 50g, 50h. Assuming the user touches the screen 12 at the point 52, marked with an X, he may, indeed, have wanted to select the letter "h", as the selected position 52 falls within the display area 54h for that letter. On the other hand, he may have been aiming at the "t", "y" or "g" key and missed. After all, the selected position 52 is only just on the "h" key and, due to the staggered alignment of the rows of keys, is actually closer to the centre of the "y" key

than to the centre of the "h" key. It is also not much further away from the centers of the "t" and "g" keys. [Paragraph 0024]

Thus, Chua teaches detecting a touch at a selected position and based in the distance between the selected position and the representative positions, i.e., centers, of individual virtual keys, deciding a set of candidate keys from which to derive candidate words. Chua therefore does not teach **associating areas of a touch interface of a mobile electronic device with characters, wherein at least some of the associated areas overlap with one another to form intermediate regions that represent more than one character**, as set forth in independent claim 1.

In the Office Action, the Examiner acknowledges that Chua does not disclose an intermediate region that represents more than one letter. The Office Action states that Davidson "shows the functionality of providing control areas with extended regions which form an intermediate region (Fig. 9(a); Column 18, Lines 7-14)."

#### THE DAVIDSON REFERENCE

Davidson discloses:

In accordance with one illustrative embodiment of the invention, expanded touch zones for each active control key are defined, **the expanded touch zone for each active control key having an area that is larger than the corresponding display area for the control key**. The dimensions and shape of the expanded touch zone defined for each active control key are defined adaptively depending upon the existence and location of other active control keys on the user interface panel. Thus, **the dimensions and shape of each expanded touch zone are automatically altered to avoid overlapping with other expanded touch zones** when other active controls keys are located nearby on the interface panel. When the user touches the interface panel, a determination is made as to whether an expanded touch zone for any active control key has been touched and if it has, the active control function indicated by the active control key corresponding to the expanded touch zone touched by the user is selected. If an expanded touch zone for any active control key has not been touched, an indication is provided that no active control function has been selected. [Col. 2, lines 13-32, emphasis added]

In one embodiment of the adaptive touch recognition system of the present invention, **dead zones are established between the expanded touch zones of adjacent active control keys**. As shown in FIG. 3(b), the distance  $x$  by which the boundaries of expanded touch zones 20 and 22 are respectively spaced from control key display areas 16 and 18 is selected so that the expanded touch zones 20 and 22 are spaced from each other by a predetermined distance  $d$ . The space between the expanded touch zones 20 and 22 defines a dead zone 24 between control keys 17 and 19. **A dead zone is defined as an area that, when touched by the user will not select any active control key**. The purpose of the dead zone is to prevent the existence of areas on the display panel wherein the

determination of the selected control key varies based upon a change in touch location of only a few pixels. When dead zones are established between the expanded touch zones of adjacent control keys, the areas of the expanded touch zones for these control keys are not maximized. However, it has been determined that any disadvantage suffered by failing to recognize some touches that might fall within larger expanded touch zones for adjacent control keys is outweighed by avoiding miss hits that might occur whereby a control key other than the one intended by the user is selected when the user touches a location near a boundary between the expanded touch zones of two adjacent active control keys. [Col. 5, lines 23-48, emphasis added]

It should be further understood that although dead zones are defined between the expanded touch zones of adjacent active control keys in one embodiment of the invention, the adaptive touch recognition system of the present invention can also be practiced without defining dead zones between expanded touch zones. When dead zones are not defined between expanded touch zones, the predetermined distance  $d$  (shown in FIG. 3(b)) by which the expanded touch zones of adjacent active control keys are spaced is set to zero. As a result, the **expanded touch zones of adjacent active control keys abut one another but do not overlap**. [Col. 6, lines 1-10, emphasis added]

FIG. 9(b) illustrates a dead zone 536 that is formed between control keys 520 and 524; FIG. 9(c) illustrates a dead zone 534 that is formed between control keys 522 and 524; and FIG. 9(d) illustrates a dead zone 532 formed between the control keys 520 and 522. [Col. 18, lines 15-19]

As can be seen from FIG. 9(b), if control keys 520 and 524 are the only two considered, touch location 540 appears to fall within the expanded touch zone of control key 520 because it is closer to control key 520 by more than the dead zone size. However, as shown in FIG. 9(e), when each of the three control keys are considered, **touch location 540 falls within a dead zone between control keys 522 and 524 and therefore, does not select any active control key.**" [Col. 18, lines 58-65, emphasis added]

Thus, Davidson teaches non-overlapping extended touch zones for adjacent keys with dead zones between the expanded touch zones. When a touch location falls within a dead zone, nothing is selected. Although FIG. 9a shows overlapping extended touch zones, Davidson does not teach or suggest how to resolve a touch in overlapping extended touch zones, but rather Davidson resolves the problem by teaching shortening the extended touch zones such that they do not overlap, and creates dead zones between the extended touch zones that result in no action when touched, as shown in FIG. 9b-. Davidson teaches away from this feature of amended claim 1 because the expanded touch zones do not represent more than one letter and do not overlap one another. Rather, each active key 520, 522, 524 has an expanded touch zone 542, 544, 546 that either abut one another or are separated by dead zones 532, 534, 536. Thus, the expanded touch zones in Davidson cannot represent more than one active control key. Therefore, Davidson does not teach or suggest associating areas of a touch interface of a mobile electronic device with characters, wherein at least some of the associated

**areas overlap with one another to form intermediate regions that represent more than one character**, as set forth in independent claim 1 as amended above.

The Office Action also states, "Nor does Chua explicitly disclose wherein for at least one particular letter, an area of said one or more touch interfaces associated with said particular letter is bounded by joining the centers of letter nearest to the particular letter. However, Vargas discloses a functionality of associating a center point of letters with the intended selection. (Figure 2, Column 5, Line 40-Column 6, Line 7)."

#### THE VARGAS REFERENCE

Vargas discloses:

If the contact point on a key is displaced from the center point of the key struck more than 0.2 times the key width, the system and method of the present invention undertake a calculation to determine which character the user intended to enter. The method of the present invention begins by **determining which two keys adjacent to the struck key have their center points closest to the contact point**. While more or less than two adjacent keys could be determined in connection with the present invention, two additional keys with center points nearest the contact point appear to provide good character selection results. The two additional keys with center points nearest the contact point and the key actually struck are defined as the proximate keys. [Col. 5, lines 51-54, emphasis added]

In FIG. 2 for example, keys "S", "W", and "E" each have center points 60, 62, and 64 respectively. If a user touches the keyboard 22 at a contact point 66 in the upper part of the "S" key and if the contact point 66 is more that 0.2 of the width of the key from the center point 60 of the "S" key, the method of the present invention is called upon to select a character for entry. The method **calculates the distances from the contact point 66 to the center points of all of the keys adjacent to the "S" key and selects the two keys, keys "W" and "E" for example, with the nearest center points 62 and 64**. [Col. 5, lines 55-65, emphasis added]

After the method of the present invention has selected the proximate keys "S", "W", and "E", the method then tests to determine which character represented by those three proximate keys is the most likely candidate to be entered. As previously stated, the likelihood of a character being selected and entered **depends on the frequency with which the character might appear in the text based on previously entered characters and on the distance between the contact point and the center point of each of the proximate keys**. [Col. 5, line 66 through Col. 6, line 7, emphasis added]

Thus, Vargas determines which two keys adjacent to a struck key have their center points closest to the contact point by calculating distances from the contact point to the center points of all the keys adjacent to the struck key. Vargas selects the most likely candidate for entry based

on the distance between the contact point and the center points of each of these keys and the frequency with which the character might appear in text based on previously entered characters.

Vargas therefore does not teach **wherein for a first character, the associating comprises associating an area of the touch interface with the first character by joining the centers of characters nearest to the first character**", as set forth in independent claim 1 as amended.

Thus, the Applicant has shown that none of the cited references, alone or in combination, teach **associating areas of a touch interface of a mobile electronic device with characters wherein at least some of the associated areas overlap with one another to form intermediate regions that represent more than one character and wherein for at least one particular character, the associating comprises associating an area of the touch interface with the particular character by joining the centers of characters nearest to the particular character**, as set forth in independent claim 1. Thus, the Chua, Davidson and Vargas references, taken alone or in combination, fail to teach or suggest each and every element of amended claim 1.

Independent claims 6, 22, and 34 as amended above as well as new independent claim 38 are not obvious in view of the combination of Chua, Davidson and Vargas for the reasons set forth above for amended independent claim 1.

Applicant respectfully submits that the Office Action has failed to establish a *prima facie* case of obviousness because the Chua, Davidson, and Vargas references, taken alone or in combination, do not teach or suggest all of the elements of the independent claims 1, 6, 22, and 34 as amended above.

A person skilled in the art would not have been motivated to combine the teachings of Chua, Davidson, and Vargas. Even if a person of ordinary skill in the art were to attempt to combine these references, they would not arrive at the claimed invention. The rejections fail to provide the teachings necessary to fill the gaps between these references in order to yield the invention as claimed. The rejections take items out of context and combine them without motivation, in effect producing the words of the claims (and sometimes, not even the words or concepts of the claims), without their meaning or context.

Thus, the claims of the present invention are not taught or suggested by Chua, Davidson, and/or Vargas. Combining these references fails to teach or yield the invention as claimed. The combination of these references fails to teach or suggest all the elements of the claims. Further, one of skill in the art would not be motivated to make such a combination. Therefore, the present invention is not obvious in light of any combination of Chua, Davidson, and/or Vargas.

Applicant therefore submits that amended independent claims 1, 6, 22, and 34, are not obvious in view of the combined teachings of Chua, Davidson and Vargas.

With respect to amended dependent claims 3, 4, 5, 7, 9, 10, 12, 15, 22, 23, 25, 26, 28, 31, and 35, Applicant submits that these dependent claims include at least all of the limitations of one of independent claims 1, 6, 22, and 34 and accordingly, these claims are not obvious in view of the combined teachings of Chua, Davidson, and Vargas for at least the same reasons that claims 1, 6, 22 and 34 are not obvious in view of the combined teachings of these references.

3. The Examiner has rejected claims 8, 11, 24, and 27 as being unpatentable over Chua, Davidson, and Vargas in further view of Moon.

As shown above, Chua, Davidson, and Vargas fail to teach all of the limitations of independent claims 1, 6, and 22. Moon fails to cure the deficiencies of Chua, Davidson, and Vargas to teach the claims because Moon does not teach or suggest the elements of amended claims 1, 6, and 22 not taught by Chua, Davidson, and Vargas as set forth above. Accordingly, claims 8, 11, 24, and 27 cannot be regarded as being obvious in view of the combined teachings of Chua, Davidson, Vargas, and Moon.

4. The Examiner rejected claims 36 and 37 under 35 U.S.C. §103(a) as the as being unpatentable over Chua, Davidson, and Vargas in further view of Robinson.

As shown above, Chua, Davidson, and Vargas fail to teach of the limitations of independent claim 34. Robinson fails to cure the deficiencies of Chua, Davidson, and Vargas to teach the claims because Robinson does not teach or suggest the elements of amended claim 34 not

taught by Chua, Davidson, and Vargas as set forth above. Accordingly, claims 36 and 37 cannot be regarded as being obvious in view of the combined teachings of Chua, Davidson, Vargas, and Robinson.

5. Claims 1, 3-2, 15, 22-28, 31, 34-37 are amended above and claim 38 is new. No new matter is added by the added claim or amendments, which simplify the claim language and are not introduced in response to the rejections of the office action.

6. The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication may advance the prosecution of the present application.

Notice of allowance of claims 1, 3-12, 15, 22-28, 31, and 34-38 is hereby respectfully requested.

The Commissioner is hereby authorized to charge any additional fees, and credit any over payments to Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP.

Respectfully submitted,  
GRIFFIN, Jason, T.

By: /Geoffrey de Kleine/

**Geoffrey de Kleine**  
**Reg. No. 50,216**  
**Attorney for Applicant**

Borden Ladner Gervais LLP  
1200 Waterfront Centre  
200 Burrard Street, P.O. Box 48600  
Vancouver, British Columbia V7X 1T2  
CANADA

GDK

Tel: (604) 687-5744  
Fax: (778) 329-0752  
E-mail: [ipmailvancouver@blgcanada.com](mailto:ipmailvancouver@blgcanada.com)